METHOD FOR TESTING THE BRAKE OF AN ELECTRIC MOTOR

FIELD OF THE INVENTION

The invention relates to a method for inspecting or testing the brake of an electric motor.

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BACKGROUND OF THE INVENTION

Brakes used in servodrives, such as in speed-regulated motor drives of a robot, have a safety function within the framework of brake assistance during emergency braking, fixed braking of machine axles in the power-off or deenergized state, optionally against gravitational force, etc. Therefore it is necessary to ensure that the brakes always function correctly. As such brakes, particularly in the case of temporary dynamic loading, as occurs with brake assistance during emergency braking, are subject to wear, it is necessary to monitor their characteristics. For safety reasons use is mainly made of electromagnetic brakes with spring pretension, in which the braking action is cancelled out by the compensation of a permanent magnetic field on applying a control voltage. However, the invention is not limited thereto.

EP 924 538 A2 provides a method and an arrangement for the checking of motor brakes, in which with the motor stationary the brake is activated, briefly a starting voltage is connected in and then the motor current is compared with a preset desired value, so that in the case of undesired divergences a malfunction of the brake is recognized and corresponding measures can be carried out for bringing about a safe operating state of the electric motor. The comparison or reference desired value must be chosen in such a way that even with a relatively large brake torque range in all cases a reliable and safe disconnection occurs. In this procedure a monitoring of a change to the state of the brake cannot be carried out when taking account of the large range existing for different brakes and in particular not with respect to the influences of temperature, dirtying, abrasion and other ageing effects, as well as premature wear due to dynamic braking processes.

Therefore the problem of the invention is to propose a method for monitoring the change in the characteristics of a brake, which can be performed during the operation of the motor, such as e.g. that of a robot.

SUMMARY OF THE INVENTION

According to the invention this problem is solved in the case of a method of the aforementioned type, which is characterized in that in a measuring sequence in speed-regulated operation the brake is applied for a short time and at least during this time a motor current is measured and on the basis of